REMARKS

In response to the election requirement, the election to prosecute the species 11 (Fig. 21), as defined in the present office action, is affirmed. Claims 1-5 and 16-18 are drawn to this species. New claim 19 is also drawn to species 11. Claim 2 has been cancelled without prejudice, however, since its recitations have been added to claim 1.

In the office action, claims 1-5 and 16-17 were rejected under 35 U.S.C. § 102(e) as anticipated by Lilley (US 5,599,302). Additionally, claim 18 was rejected under 35 U.S.C. § 103(a) as being obvious over Lilley. Claims 1 and 16 are directed to an injection device that has an injection-assisting probe with a body fixed at a distal end of a housing of the device. The probe has a discharge channel that terminates in an orifice through which the fluid is expelled to jet inject the fluid. These claims also recite that the discharge channel has a length to orifice diameter that is greater than 6/1.

As explained in the specification of the present application on pages 8 and 9, using a discharge channel with at least this minimum length to diameter ratio has been found to allow the use of a significantly lower force applied by the mechanism that fires the jet without resulting in a reduction in pressure. The use of the claimed device requires less energy than conventional devices since they provide a the same quality of injection with a lower steady state pressure. As shown with reference to Fig. 18 of the application, a 40 lb. energy source has been used to produce a similar injection with the claimed probe to the injection was accomplished using a 55 lb. energy source with a traditional probe.

The Examiner has contended that Lilley teaches an injection assisting probe with a discharge channel that has an orifice diameter of about 0.07-0.4 mm. The argument is made that looking at Figs. 1-6, and specifically at Figs. 10 and 11, leads to the conclusion that the length of the discharge channel is at least 0.024 inches and that the length to orifice ratio is inherently greater than 6/1 or 9/1.

There is, however, no disclosure of such a channel length. In fact, one can measure directly from Figs. 10 and 11 that the ratio of length to width leading to the orifice 24 of Lilley is well under 6/1. Additionally, as provided in M.P.E.P. § 2125, "When a reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value." (*citations omitted*). In this case, Lilley is silent as to the length of the channel, and even looking at the Lilley drawings, the claimed ratio is not present. Thus, Lilley does not anticipate claims 1 or 16.

Additionally, there is no suggestion to modify the Lilley teaching to obtain the ratio of more than 6/1. In the manufacture of injection nozzles, it is typically desired to keep the length of the discharge channel as small as possible. This is because the channel is typically made with a core pin that forms the orifice and channel. The core pin becomes increasingly fragile as its length to diameter ratio is increased, hindering manufacturing of the device.

As explained on page 5 of the application, although it could be done, it is especially problematic to make the high claimed length to diameter ratios using plastic components. With specific reference to its Figs. 10 and 11, Lilley explains that the nozzles shown can be made from plastic materials. (Lilley, 10:21-28.) There is no suggestion that it may be any harder to use these materials. This supports that the Lilley reference did not suggest using a length to diameter ratio above 6/1, which is claimed. There is certainly no disclosure or suggestion in Lilley of an even greater ratio, as defined in claim 18.

Also, the advantages provided by using the device with the probe of claim 1 or 16 with a length to diameter ratio of greater than 6/1 discussed above, enabling a lower force energy source to be used, are surprising advantages over the Lilley disclosure. For the above reasons, the differences in length to diameter ratios between the claims and Lilley do not result in equivalent devices, which was argued in the office action concerning claim 18.

Claims 1, 16, an 18 are thus neither anticipated nor obvious over Lilley. New claim 19, which recites the length to diameter ratio of claim 18 but depends on claim 1, is also patentably distinct over Lilley.

The office action also includes an obviousness type double-patenting rejection of claims 1-5 and 16-18 over U.S. Patent No. 6,309,371, which is the parent of the present application. This rejection is not believed to be proper at least for claims 1-5 (and 19). In the parent application (now the '371 patent), an election was required on July 17, 2000, stating that the species of Figs. 1-3 were patentably distinct from the species of Fig. 21. In the parent case, the species of Figs. 1-3 was elected and prosecuted. In the election requirement of the present application, essentially the same groupings of figures showing the different patentably distinct species is used as was in the parent case. The present application was filed in part to prosecute the claims drawn to species 11. While claims 16-18 are generic to the species of Figs. 1-3, the U.S.P.T.O. has already determined that the scope of claims 1-5 is patentably distinct from the '371 patent.

M.P.E.P. § 804.01 explains that 35 U.S.C. §121 prohibits the use of a patent as a reference against an application where the application was filed as a result of a requirement for restriction that was made in the patent. Claims 1-5 were filed to pursue the restricted matter from the parent. Thus, the double patenting rejection may become moot if only these claims are ultimately pursued, as the application would become a pure division of the parent. The filing of a terminal disclaimer is thus presently postponed, but such disclaimer will be submitted to overcome the double patenting rejection if all of the present claims are allowed.

All of the substantive patentability issues regarding prior art are believed to be presently overcome. Should any issues remain, a personal or telephone interview is respectfully requested to discuss the same in order to expedite the allowance of the application.

Respectfully submitted,

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